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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,689	08/23/2001	Young-Bin Im	P56540	8403
7590 12/30/2003 Robert E. Bushnell Suite 300 1522 K Street, N.W. Washington, DC 20005-1202			EXAMINER ROY, SIKHA	
			ART UNIT 2879	PAPER NUMBER

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/934,689

Applicant(s)

IM ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 7-13, 22 and 23 is/are allowed.
- 6) ☒ Claim(s) 14-21 and 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

The Amendment, filed on September 2, 2003 has been entered and overcomes the rejection of claim 1 under 35 U.S.C. § 102(b), and claims 2-5,8-13 under 35 U.S.C. § 103(a).

Cancellation of claim 6 has been entered.

Claims 1-5, 7-13 and 22, 23 are directed to an allowable product. Pursuant to the procedures set forth in the Official Gazette notice dated March 26, 1996 (1184 O.G. 86), claims 14-21,24-27, directed to the process of making the patentable product, previously withdrawn from consideration as a result of a restriction requirement, are now subject to being rejoined. Claim14-21, 24-27 hereby rejoined and fully examined for patentability under 37 CFR 1.104.

Since all claims previously withdrawn from consideration under 37 CFR 1.142 have been rejoined, the restriction requirement made in Paper No. 4 is hereby withdrawn.

Specification

The disclosure is objected to because of the following informalities:

The reference number 202 shown in Fig. 11 on the lower exposure mask 200 has not been explained in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14,15, 25 and 18,19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,411,822 to Ohtake et al., and further in view of U.S. Patent 4,094,678 to Palac.

Regarding claim 14 Ohtake discloses (column 12 lines 67-69, column 13 lines 1-28 Figs. 2, 8A and 8B) method of forming shadow mask 4 comprising coating upper and lower surfaces of a thin plate (mask substrate10) with photosensitive (photo resist) films, arranging (bonding) an upper exposure mask 20b (negative plate) having pattern with upper light transmission strips 21b formed parallel to each other on the upper surface of the thin plate, arranging a lower exposure mask (negative plate) 20a having pattern with lower light transmission strips 21a formed parallel to each other on the lower surface of the thin plate and having lower light blocking bridges 22a separating the lower transmission strips, exposing and developing the photosensitive films. Thus the resist patterns having exposed portions corresponding to the patterns of the exposure masks are formed on both sides of the thin plate. Thereafter the thin plate is etched from both sides.

Claim 14 differs from Ohtake in that Ohtake does not exemplify molding the thin plate to a predetermined curvature and thus forming the molded shadow mask for the color cathode ray tube.

Palac in analogous art of method of making shadow mask for color cathode ray tube discloses (column 7 lines 43-46, Figs. 10,11) the thin plate (mask blank) being molded with a precision shaped predetermined three dimensional configuration. It is to be noted that molding of the thin plate provides precise conformation of the aperture pattern with the phosphor screen and thus improves the image pattern produced in the color cathode ray tube.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include the molding of the thin plate of Ohtake as suggested by Palac in the final step for producing shadow mask for providing precise conformation of the aperture pattern with the phosphor screen and thus improving the image pattern produced in the color cathode ray tube.

Regarding claim 15 Ohtake discloses (Figs. 8A and 8B) each of the upper light transmission strips having first width 21b and each of the lower transmission strips having second width 21a, first width being larger than the second width.

Referring to claim 25 Ohtake discloses the upper exposure mask (shadow mask printing negative plate) 20b and lower exposure mask 20a forming an exposure mask assembly.

Claim 18 essentially recites the same limitation as of claims 14 and 25 and hence is rejected for the same reason.

Claim 19 essentially recites the same limitation as of claim 15 and hence is rejected for the same reason.

Claim 27 essentially recites the same limitations of exposing the photosensitive film covered with exposure masks on the two sides of the thin plate, developing followed by etching and then molding for forming the shadow mask as of claim 14 and hence is rejected for the same reason.

Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,411,822 to Ohtake et al., and U.S. Patent 4,094,678 to Palac and further in view of U.S. Patent 3,883,770 to Yamada et al.

Regarding claim 24 Ohtake and Palac do not disclose the thickness of the mask at a central portion of the connecting bridges being relatively thinner than the thickness of the mask at an outer portion of the connecting bridges.

Yamada in relevant art of color selecting electrode for a color cathode ray tube discloses (Fig. 4 column 2 lines 60-68) bridges 3 with indentation (reduced height) are etched such that the portion of the bridge are removed resulting in indentation to a predetermined depth from the mask first surface whereas the portion of the bridge on the second surface are not etched and therefore the thickness of the mask at central portion of the bridge 3 is thinner than the outer portion. Yamada further discloses that this configuration of the bridges provides the shadow mask with sufficiently large mechanical strength.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include the configuration of the bridges so that thickness of the mask at a

central portion of the connecting bridges being relatively thinner than the thickness of the mask at an outer portion of the connecting bridges as disclosed by Yamada in the shadow mask formed by the method of Ohtake and Palac for providing the shadow mask with sufficiently large mechanical strength.

Claim 26 essentially recites the same limitation of claim 24 and hence is rejected for the same reason.

Claims 14 - 21, 25 and 27 provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 09/836,550 to Choe et al. which has a common assignee with the instant application and further in view of U.S. Patent 4,094,678 to Palac.

Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention

was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claims 14 and 25, Choe et al. disclose (sections [0053], [0054], [0055], [0056] and [0057] Figs. 14-16) a method of manufacturing tension for a color cathode ray tube comprising coating the steel plate 91 with photosensitive films 92 on upper and lower surfaces, arranging an upper exposure mask 100 having pattern including series of parallel light transmission strips on the upper surface, forming lower exposure mask 200 having a pattern of series of parallel lower transmission strips and a plurality of lower light shielding bridges 202, exposing the photosensitive film with light source, removing the masks 100 and 200 from the steel plate, developing , followed by etching of the plate.

Claim 14 differs from Choe in that Choe does not exemplify molding the thin plate to a predetermined curvature and thus forming the molded shadow mask for the color cathode ray tube.

Palac in analogous art of method of making shadow mask for color cathode ray tube discloses (column 7 lines 43-46, Figs. 10,11) the thin plate (mask blank) being molded with a precision shaped predetermined three dimensional configuration. It is to be noted that molding of the thin plate provides precise conformation of the aperture pattern with the phosphor screen and thus improves the image pattern produced in the color cathode ray tube.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include the molding of the thin plate of Choe as suggested by Palac in

the final step for producing shadow mask for providing precise conformation of the aperture pattern with the phosphor screen and thus improving the image pattern produced in the color cathode ray tube.

Regarding claim 15 Choe discloses in Figs. 17,18 that the upper light transmission strips having a first width larger than the second width of the lower light transmission strips.

Regarding claims 16 and 17 Choe discloses in Fig. 15 that the upper exposure mask 100 not having upper light blocking bridges separating upper light transmission strips 101.

Claims 18 and 27 essentially recite the same limitations as of claims 14 and 25 and hence are rejected for the same reasons.

Claim 19 recites the same limitation as of claim 15 and hence is rejected for the same reason.

Claims 20,21 essentially recite the same limitations as of claims 16 and 17 and hence are rejected for the same reasons.

Allowable Subject Matter

Claims 1-5,7-13, 22 and 23 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1 the prior art of record neither shows nor suggests a mask with plurality of indented bridges with all the limitations as claimed and particularly the

limitation comprising the first width of the first bridges near the center being smaller than the second width of the second bridges near the periphery the widths being measured perpendicular to the length direction of the slots.

Claims 2-5, 8-13, 22 and 23 are allowed being dependent on the allowed base claim 1.

Regarding claim 7 the prior art of record neither shows nor suggests a mask with plurality of indented bridges with all the limitations as claimed and particularly limitation comprising first bridges near the center being indented to a predetermined depth, deeper than the second bridges near the periphery.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art references show the method of manufacturing shadow mask of a color cathode ray tube.

U.S. Patent 3,973,965 to Suzuki et al.

U.S. Patent 5,200,025 to Toei et al.

U.S. Patent 5,336,587 to Tanaka et al.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879



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